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ABSTRACT

The 11th Grade Test (1984) of the Illinois Inventory of Educational Progress includes 19 reading items, 45 geometry items, 46 science items, a 27-item student questionnaire regarding science opinions, and 49 mathematics items. The test booklet only is included here. (PN)

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THE ILLINOIS INVENTORY OF EDUCATIONAL PROGRESS

1984 **GRADE 11**

ED240162

U.S. DEPARTMENT OF EDUCATION
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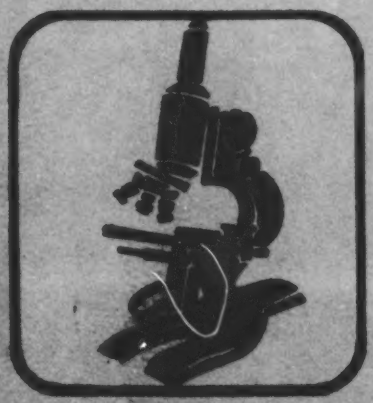

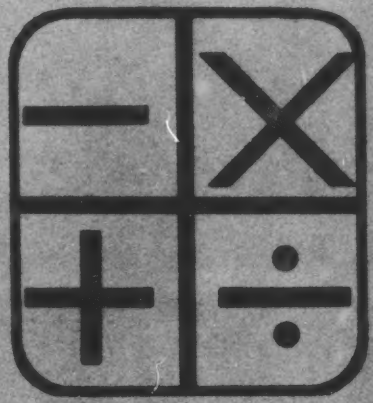

11th GRADE TEST

ILLINOIS INVENTORY OF EDUCATIONAL PROGRESS

DIRECTIONS FOR FILLING OUT THE ANSWER SHEET

*USE A #2 PENCIL TO MARK YOUR ANSWERS.

*MARK ALL OF YOUR ANSWERS ON THE ANSWER SHEET.

*DO NOT WRITE IN THE TEST BOOKLET.

*MATCH THE QUESTION NUMBER TO THE NUMBER ON THE ANSWER SHEET.

*MAKE YOUR MARKS WITHIN THE BUBBLE FOR THE ANSWER YOU SELECT.

*MAKE YOUR MARKS FIRMLY; FILL THE BUBBLE COMPLETELY.

*THERE ARE MORE PLACES FOR ANSWERS THAN THERE ARE QUESTIONS IN THE BOOKLET. BE SURE TO MARK YOUR ANSWER SHEET IN THE PROPER LOCATION.

*IF YOU WISH TO CHANGE AN ANSWER, COMPLETELY ERASE THE MARK YOU WISH TO CHANGE.

*FOLLOW THE DIRECTIONS ON THE SEPERATE SHEET OF INSTRUCTIONS TO FILL IN THE NAME AND STUDENT CODE ON THE ANSWER SHEET.

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Reading passages are used by special agreement with publishers.

PART 1 SECTION 1

READING TEST

DIRECTIONS: This section contains reading items. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 19 reading items. You will have 30 minutes. READY, BEGIN.

From Napolean by Emil Ludwig

About twenty men are seated round a large oval table. Some are quite young; some middle-aged, some elderly. They are plainly dressed, in accordance with the fashion of 1800, when wigs were no longer worn, and lace was out-of-date; those of them that are in uniform are not resplendent with gold braid, and they wear no orders. Some have the bold, self-confident look of the man of action; others the thoughtful mien of the savant. From town and from countryside, from office and from laboratory, they come, but are unified by a common experience and a common aim. For ten years, they have been living through a revolutionary epoch; they meet to bring that epoch to a close. Around them is the chill splendor of the Tuileries, the palace of the last Bourbon kings. The golds and the reds of the rich carpets and the silken hangings are out of keeping with their bourgeois circumstantiality; the silvery sheen of the candles, reflected in rainbow tints from the myriad facets of the candelabra, recalls an era that scintillated with light and glowed with color... Several of those now seated at the oval table had waited here of old - wearing powdered wigs, lace jabots, and pumps - tremulous with eagerness to learn whether His Majesty would receive them, and when. Some of them had sat at a similar table in the Luxembourg. There had been no stability about those deliberations. Law had come and gone, urgency orders and exceptional provisions; transitional decrees had pushed foregoing decrees out of the way; three constitutions had risen and set, had shot up into the air swiftly and brilliantly like rockets, to vanish like these and to fall like rocket sticks.

CONTINUE TO THE NEXT PAGE.

1. The word epoch in line 20 most nearly means

   A) a long, narrative poem about a great hero.
   B) a war, especially a civil war.
   C) an era or period of time.
   D) a council or governing body.

2. Study the context in which the word savant is used (line 13). It most likely means

   A) a well-trained servant, like a butler.
   B) a man of profound learning.
   C) one who has been in mourning.
   D) a member of the ruling class.

3. The word mien (line 13) means

   A) gaze.
   B) outpouring of advice.
   C) worried frown or puzzled expression.
   D) appearance or bearing.

4. How many men attended this meeting?

   A) 1,800
   B) between 10 and 15
   C) about 20
   D) The passage does not say.

5. The Tuileries, according to this selection, is

   A) the hall where the meeting is being held.
   B) a palace of the last Bourbon kings.
   C) elaborately decorated.
   D) All of the above.

6. The men are gathered at the oval table to

   A) plan for the restoration of His Majesty to the throne.
   B) argue for further taxation of the peasants.
   C) establish order and stability after a period of turmoil.
   D) press for an official declaration of war.

7. The "common experience" that unifies these men is

   A) a decade of revolution.
   B) a former acquaintance with His Majesty.
   C) the memories of their services in the Parliament.
   D) The passage gives no indication.

CONTINUE TO THE NEXT PAGE.

From Antigone by Sophocles

ODE I

CHORUS

1 Numberless are the world's wonders, but none
2 more wonderful than man; the stormgray sea
3 yields to his prow;, the hugh crests bear him high;
4 Earth, holy and inexhaustible, is graven
5 with shining furrows where his plows have gone
6 year after year, the timeless labor of stallions.

7 The lightboned birds and beasts that cling to cover,
8 the lithe fish lighting their reaches of dim water,
9 all are taken, tamed in the net of his mind;
10 the lion on the hill, the wild horse windy-maned,
11 resign to him; and his blunt yoke has broken
12 the sultry shoulders of the mountain bull.

13 Words also, and thought as rapid as air,
14 he fashions to his good use; statecraft is his,
15 and his the skill that deflects the arrows of snow,
16 the spears of winter rain: from every wind
17 he has made himself secure-from all but one:
18 In the late wind of death he cannot stand.

19 O clear intelligence, force beyond all measure!
20 O fate of man, working both good and evil!
21 When the laws are kept, how proudly his city stands!
22 When the laws are broken, what of his city stands!
23 Never may the anarchic man find rest at my hearth,
24 Never be it said that my thoughts are his thoughts.

8. Study the context in which the word fashions is used in line 14. In which sentence below is the word used with the same meaning?

A) The actor had to walk in a particular fashion in one scene.
B) The new housekeeper vacuumed and dusted -- after a fashion.
C) The students fashioned costumes out of old sheets.
D) It is no longer the fashion to kiss a lady's hand.

9. Which of the following is man unable to conquer?

A) statecraft
B) natural forces
C) the anarchic man
D) death

10. Lines 2 and 3 describe

A) the unconquerable force of the sea.
B) man's ability to conquer the sea with ships.
C) man's military might on the sea.
D) man's being reduced in stature by the mightiness of a sea storm.

CONTINUE TO THE NEXT PAGE

11. This ode praises primarily man's

A) nautical ability.
B) physical prowess.
C) intellectual ability.
D) religious devotion.

12. What example of antithesis (opposites) is not contained in this passage?

A) small animals and large animals
B) earth and seas
C) conqueror and conquered
D) day and night

13. Which of the following judgments is <u>not</u> supported by this passage?

A) The Greeks ascribed to man a lofty, noble position in the universe.
B) The Greeks believed in fate.
C) The Greeks approved of slavery.
D) The Greeks valued law and respect for authority.

CONTINUE TO THE NEXT PAGE

During the seventeenth century, Robert Hooke, an early scientist, used a compound microscope to study an "exceedingly thin piece of cork." He found that the cork was perforated or porous, much like a honeycomb. He called the microscopic compartments cells, meaning "little rooms." To Hooke, a cell was just a curious, empty container which existed within plant or animal matter. However, his discovery of the cell encouraged hundreds of scientists to investigate other plant and animal matter under their microscopes.

The cork cells observed through Hooke's microscope were dead, and there was nothing inside these particular cork cells. Other scientists examined the living cells of a variety of plants and animals. Because Hooke looked solely at dead cells, he had seen only the outlines of the cells, or the cell walls. The study of living cells, however, indicated that the cells were not just empty containers. These scientists found that some type of matter, or protoplasm, existed within the living cell walls.

The smallest object that the naked eye can see is about 100 microns (about 1/250th of an inch), but the average cell is only about five to fifteen microns in size. Compound and electron microscopes are necessary if cells are to be studied. To examine cells microscopically, plant or animal tissue must be cut into very thin sections so as to enable light to pass through the tissue to the scientist's eye. When the slivers of tissues are prepared, the cells are often rendered colorless. Early biologists found that they could add dyes or stains to the cells on their slides. Because different parts of the cell absorb the dye differently, the scientist is able to see each part clearly. The use of such techniques led to the identification of many parts of the cell, and to an understanding of the functions of these parts.

Another especially important breakthrough in cell study was made by Anton Van Leeuwenhoek, during the same period of time that Hooke was examining his microscope. In the drops of water, much to Leeuwenhoek's surprise, many living creatures appeared to be swimming around by quickly whipping their hairlike tails. Today we call Leeuwenhoek's microscopic animals protozoa. Protozoa are single-celled animals. The discovery of protozoa made it easier to study living cells. It also pointed out that cells might be important functional units of living things, since all of the life functions (such as eating, waste removal, reproduction) of the protozoa obviously must take place within single cells.

CONTINUE TO THE NEXT PAGE.

14. What do we call the matter in living cells?

A) porous
B) protozoa
C) protoplasm
D) cytology

15. Cytology is

A) the study of plants and animals.
B) cell study.
C) cancer research.
D) the study of blood.

16. Which of the following did not eventually help lead to the formulation of the cell theory?

A) Hooke's discovery
B) Leeuwenhoek's discovery
C) the discovery of the effect of stains on cells
D) the use of cytology in cell research

17. Acccording to the article, which discovery came first?

A) the compound microscope
B) the use of dyes to stain cells
C) protoplasm
D) the cell

18. Scientists discovered protoplasm

A) through the use of a better microscope than that used by Hooke.
B) through the use of stains.
C) by examining cork.
D) by examining living plant and animal matter.

19. Which of the following is the best title for this article?

A) Robert Hooke, Scientist
B) The Amazing Protozoa
C) The Development of Cytology
D) The Use of the Microscope

STOP! DO NOT CONTINUE UNTIL YOU ARE TOLD TO DO SO.

PART 1 SECTION 2

GEOMETRY TEST

DIRECTIONS: This section contains geometry items. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 45 geometry items. You will have 30 minutes. READY, BEGIN.

 CONTINUE TO THE NEXT PAGE

20. In the figure below, ABDE is a rectangle. Which segment is parallel to $\overleftrightarrow{DE}$?

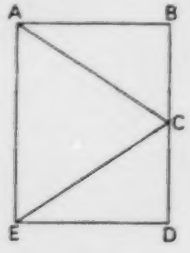
A. $\overline{AC}$

B. $\overline{AE}$

C. $\overline{CE}$

D. $\overline{AB}$

E. $\overline{BD}$



21. What is the area of the circle below with a radius of 4? (let $\pi = 3.14$)

A. 6.23

B. 12.56

C. 25.18

D. 50.24

E. 57.25

22. Which is true?

A. All rectangles are squares.

B. All squares are rectangles.

C. No squares are rectangles.

D. No rectangles are squares.

E. Some squares are not rectangles.

23. This angle is

A. an acute angle.

B. an obtuse angle.

C. a right angle.

D. a vertical angle.

E. an isoceles angle.

24. Using Figure 1, the measure of angle KFJ =

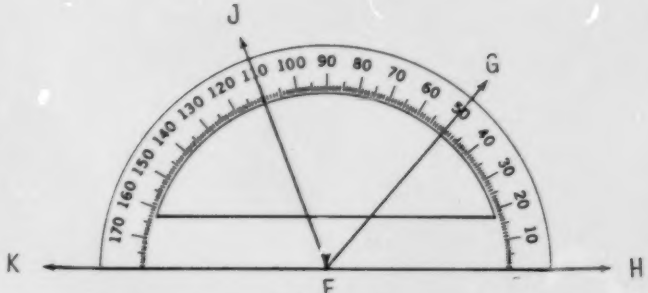


Figure 1

A. 50^{o}

B. 60^{o}

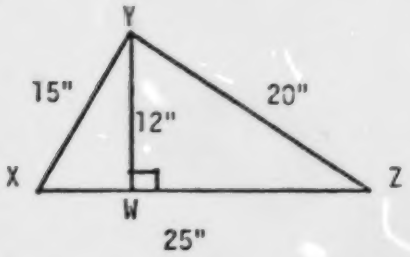
C. 70^{o}

D. 110^{o}

E. 130^{o}

CONTINUE TO THE NEXT PAGE

25. What is the perimeter of the triangle XYZ below?



A. 36 inches

B. 60 inches

C. 72 inches

D. 300 inches

E. 3,750 inches

26. In the circle below with center O, which segment is a diameter?

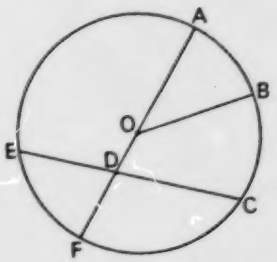
A. $\overline{OA}$

B. $\overline{OB}$

C. $\overline{CE}$

D. $\overline{AF}$

E. $\overline{EF}$



27. Identify the part of the circle below that is indicated with a dashed line.

A. center

B. diameter

C. radius

D. arc

E. perimeter

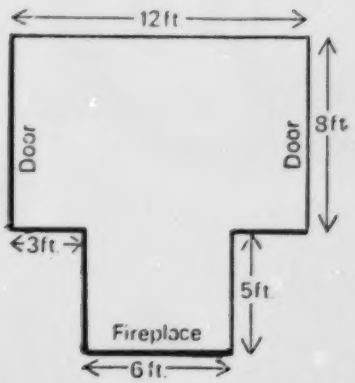
28. What is the perimeter of the room in the figure below?

A. 34 feet

B. 50 feet

C. 100 feet

D. 156 feet



29. What is the area of the triangle shown below?

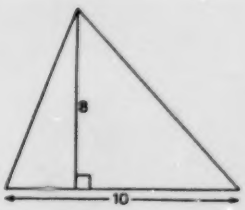
A. 9

B. 18

C. 20

D. 40

E. 80



30. In a given triangle, the measure of two of the angles are 35 degrees and 75 degrees. The measure of the third angle is

A. 40 degrees.

B. 56 degrees.

C. 70 degrees.

D. 95 degrees.

E. 110 degrees.

CONTINUE TO THE NEXT PAGE

31. Mr. Johnson wants to buy carpeting for his living room. The room is square and has a perimeter of 48 feet. What is the area of the room in square feet?

A. 144 square feet

B. 169 square feet

C. 182 square feet

D. 196 square feet

E. 576 square feet

32. What is the formula for finding the area of a circle whose radius is r?

A. πr

B. $2\pi r$

C. πr^2

D. $2\pi r^2$

E. $4\pi^2 r^2$

33. In the circle below, which line segment represents the radius?

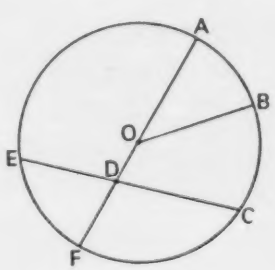
A. $\overline{CD}$

B. $\overline{AF}$

C. $\overline{EC}$

D. $\overline{DE}$

E. $\overline{OB}$



34. What is the volume of a box with a width of 9 cm, a length of 12 cm and a height of 25 cm?

A. 46 cm^3

B. 270 cm^3

C. 460 cm^3

D. 525 cm^3

E. 2700 cm^3

35. The radius of the inside of the pipe below is 3 inches. The wall of the pipe is 1 inch thick. What is the outside diameter of the pipe?

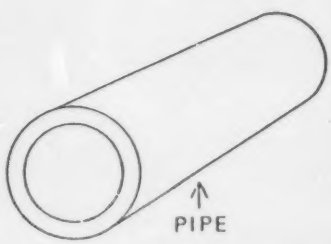
A. 4 inches

B. 5 inches

C. 7 inches

D. 8 inches

E. 9 inches



36. ABCD is a square. Each side of the square is 60 feet. How many feet long is segment $\overline{AC}$?

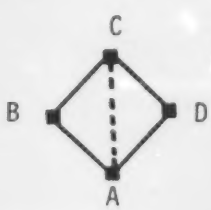
A. 30

B. $60\sqrt{2}$

C. $60\sqrt{3}$

D. 90

E. 120



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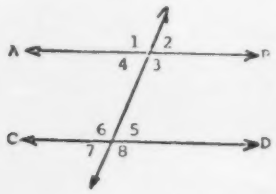
37. In the figure below, lines AB and CD are parallel. Two angles whose measures sum to 180^0 are angles



A. 1 and 3.

B. 4 and 6.

C. 2 and 5.

D. 2 and 7.

E. 1 and 8.

38. What is the volume of the rectangular solid shown below? (Each cube is 1 cm^3.)

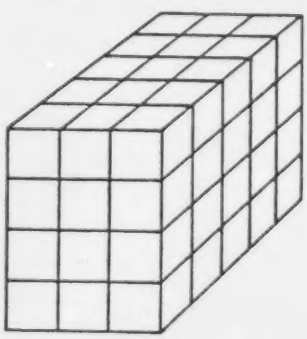
A. 12 cm^3

B. 15 cm^3

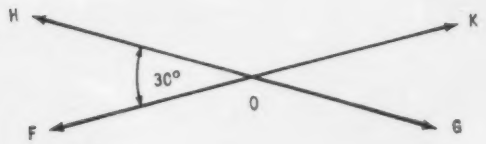
C. 47 cm^3

D. 60 cm^3

E. 72 cm^3



39. In the figure below, what is the size of angle FOG?



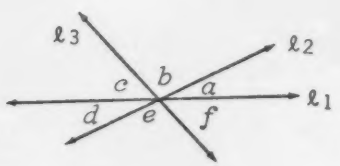
A. 30^0

B. 70^0

C. 150^0

D. 180^0

40. In the figure below, two adjacent angles would be



A. a and d.

B. d and f.

C. c and f.

D. a and b.

41. In the coordinate plane below, point A is named by:

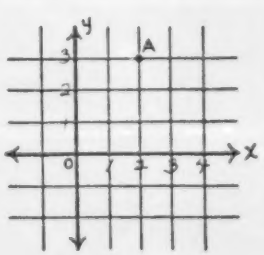
A. (2,3)

B. (3,2)

C. (3,3)

D. (3,4)

E. (4,3)



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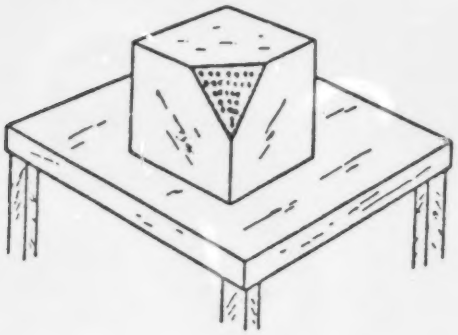
42. The figure below shows a block with one corner cut off and shaded. Which of the figures in the answer choices shows how this block would look when viewed from directly above it.



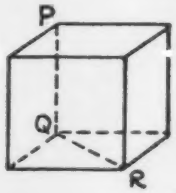
A.

B.

C.

D.

E.

43. The figure 

is a cube.

What is the measure of angle PQR?

A. 45°

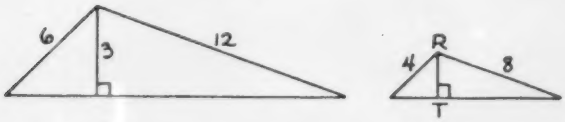
B. 90°

C. 135°

D. 150°

E. 180°

44. The two triangles below are similar.



How long is $\overline{RT}$?

A. 1

B. 2

C. 3

D. 4

E. 5

CONTINUE TO THE NEXT PAGE

45. In the figure below, what fractional part of the large circle appears to be shaded?

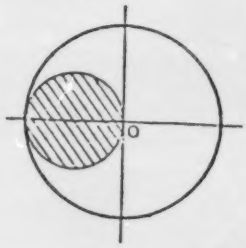
A. $\frac{1}{8}$

B. $\frac{1}{6}$

C. $\frac{1}{4}$

D. $\frac{1}{3}$

E. $\frac{1}{2}$



46. The volume of a box is known to be 1,320 cm^3. If the box is 10 cm deep and 12 cm wide, what is the length of the box?

A. 120 cm^2

B. 60 cm

C. 30 cm

D. 13 cm

E. 11 cm

47. Triangle PQR below is an isosceles triangle with $\overline{PQ} \cong \overline{PR}$. Angle x =

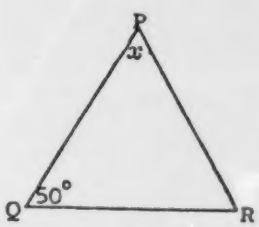
A. 40°

B. 50°

C. 65°

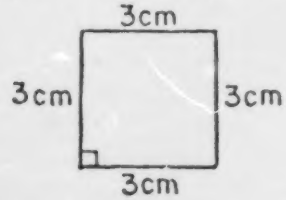
D. 80°

E. 100°

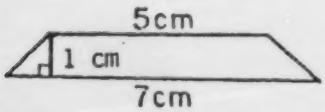


48. Which polygon below has an area of 12 square centimeters?

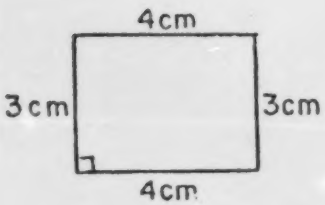
A.



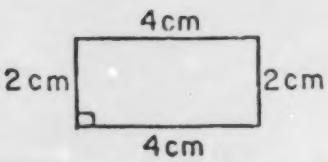
B.



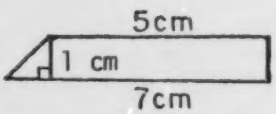
C.



D.



E.



49. The line m in the figure below is a line of symmetry for figure ABCDE. The measure of angle BCD =

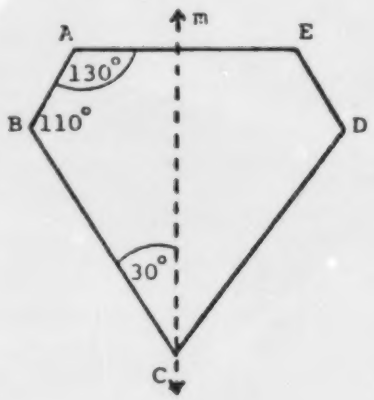
A. 30^0

B. 50^0

C. 60^0

D. 70^0

E. 110^0



50. A box has a volume of 100 cm^3. Another box is twice as long, twice as wide and twice as high. What is the volume of the second box?

A. 200 cm^3

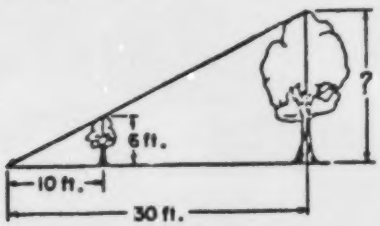
B. 450 cm^3

C. 500 cm^3

D. 600 cm^3

E. 800 cm^3

51. The figure below shows how to use a short tree to find the height of the tall tree. What is the height of the tall tree?



A. 12 feet

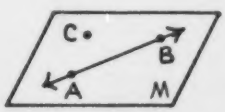
B. 18 feet

C. 20 feet

D. 36 feet

E. 46 feet

52. Which is true for the figure below?



A. Line $\overleftrightarrow{AB}$ is contained in plane M.

B. Segment $\overline{AB}$ is parallel to point C.

C. Point C is contained in line $\overleftrightarrow{AB}$

D. Plane M is contained in line $\overleftrightarrow{AB}$

E. None of the above.

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53. In Figure 2 below, if you rotate PQR around line l, which figure shows the three-dimensional figure traced out by the moving sides?

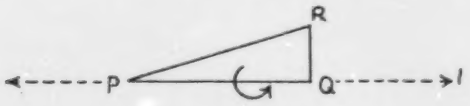
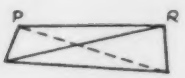
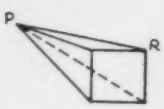
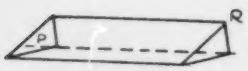


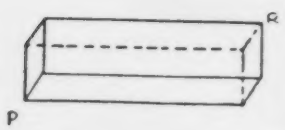
Figure 2

A.

B. 

C. 

D. 

E. 

54. Which of the following statements is false?

A. All squares are rectangles.

B. No rectangles are squares.

C. Some rectangles are squares.

D. All rectangles are parallelograms.

E. Some quadrilaterals are squares.

55. Nine faces are shown below.

Which surface(s) shown BELOW can be built using only some or all of these 9 faces?

Figure I

Figure II

Figure III

A. Only Figure I

B. Only Figure II

C. Only Figure III

D. Only Figures I and III

E. All three figures

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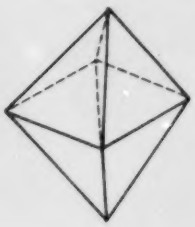
56. Select an answer that is NOT true about the surface pictured below.



A. It is a closed space figure.

B. It is a pyramid.

C. It has 6 vertices.

D. It has 8 faces.

E. It has 12 edges.

57. Which of the following is NOT ALWAYS TRUE for a rhombus?

A. All of the sides are congruent.

B. All of the angles are congruent.

C. The diagonals bisect each other.

D. The diagonals are perpendicular to each other.

E. It has at least two lines of symmetry.

58. Which point is <u>outside</u> the shaded figure below?

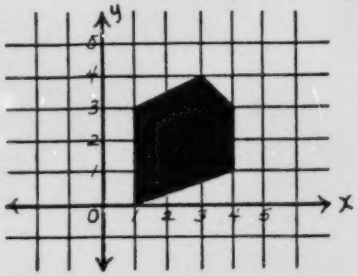
A. (4,3)

B. (4,1)

C. (3,2)

D. (2,4)

E. (2,1)



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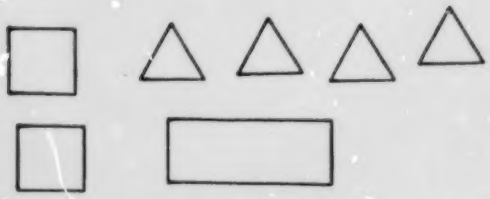
59. Seven faces are shown below.



Which surface(s) shown BELOW can be built using only some or all of these 7 faces?

Figure I

Figure II

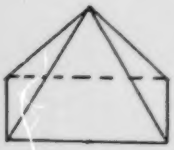


Figure III

A. Only Figure I

B. Only Figure II

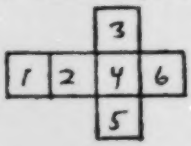
C. Only Figure III

D. Only Figures I and II

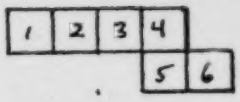
E. All three figures

Directions: Use the patterns in Figure 3 below to answer question 60.

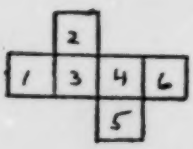
A.



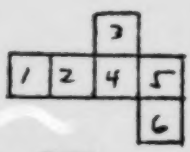
B.



C.



D.



E.

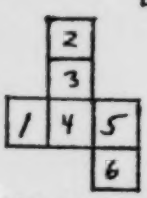


Figure 3

60. If the patterns in Figure 3 were each folded to try to make a box which one of the following statements is TRUE?

A. In (A), square 1 and 6 would overlap.

B. In (B), square 1 and 6 would overlap.

C. In (C), square 1 and 6 would overlap.

D. In (D), square 1 and 6 would overlap.

E. In (E), square 1 and 6 would overlap.

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61. The straight line joining the points (2,3) and (2,1) cuts the straight line joining the points (1,4) and (6,4) at the point

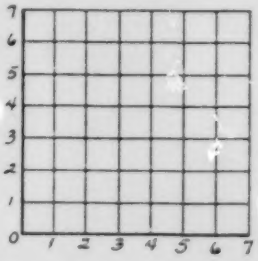
A. (1,3).

B. (1,4).

C. (2,3).

D. (2,4).

E. (4,2).



62. ℓ is a line of symmetry. Which point is the reflection (mirror image) of point X with respect to line ℓ?

A. P

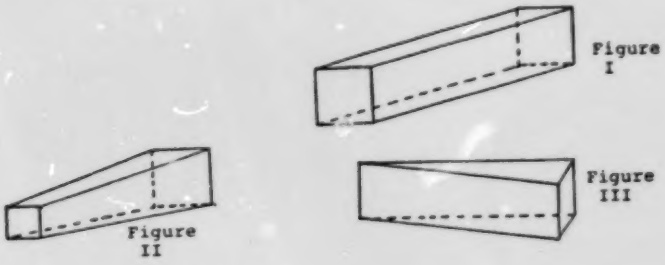
B. Q

C. R

D. S

E. X

63. The definition of parallelopiped is satisfied by which figure(s) below?



A. Only Figure I

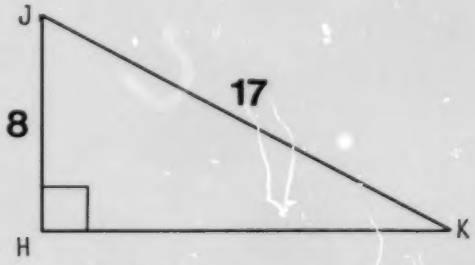
B. Only Figure II

C. Only Figure III

D. Only Figures I and II

E. Only Figures II and III

64. In right triangle HJK, the length of segment $\overline{HK}$ is



A. 9

B. 12

C. 13

D. 15

E. 25

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This section contains items about science. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 46 science items. You will have 25 minutes. READY, BEGIN.

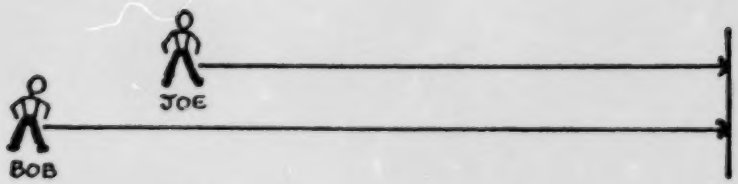
---

65. What is the main way sweating helps your body?

a. It helps cool your body.
b. It keeps your skin moist.
c. It keeps you from catching cold.
d. It gets rid of the salt in your body.

66. All of the following can be called matter EXCEPT

a. gold.
b. ideas.
c. shoes.
d. water.



67. Two boys raced. Joe is younger than Bob, so he started closer to the finish line. Both started to run when the signal was given. Both got to the finish line at the same time. Which is true?

a. Joe ran further than Bob.
b. Joe ran faster than Bob.
c. Bob ran faster than Joe.
d. Bob ran for a longer time.

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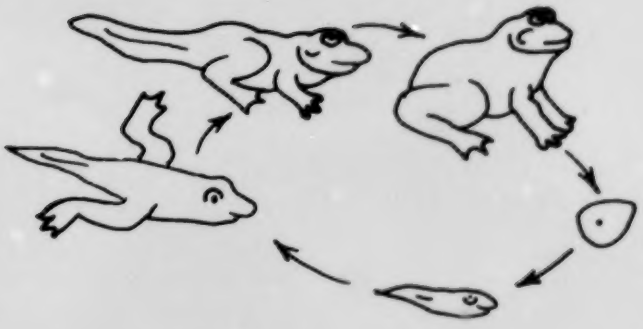
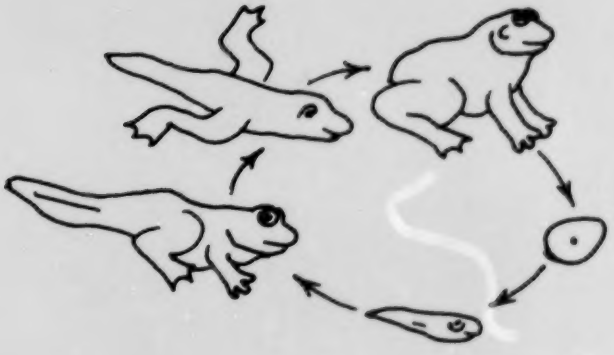
68. Look carefully at the following picture stories of the life of a frog. Which picture story is CORRECT?

a.

b.



c.



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69. Green plants make food by the process called

a. digestion.
b. evaporation.
c. photosynthesis.
d. osmosis.

70. If you want to find out how much height a girl gained in one year, which of the following MUST you know about her?

a. Her age
b. The type of food she eats
c. The height of her mother and father
d. Her height at the beginning of the year

71. All of the following are needed for a fish to live in an aquarium EXCEPT

a. food.
b. sand.
c. water.
d. oxygen.

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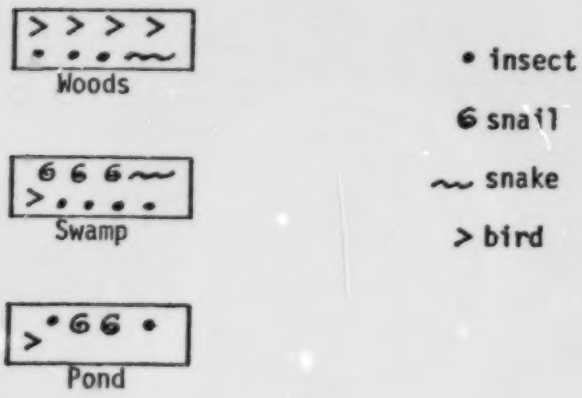
72. Some children went on a nature walk and visited three different places. They made a chart using symbols for animals they saw. Their charts show that they saw



a. more birds than any other animal.
b. more insects than any other animal.
c. more snakes than snails.
d. more snails than birds.

73. If you had to find who was the <u>fastest runner</u> in your school, which way would be best?

a. Boys run against boys and girls run against girls.
b. You only run people of the same age.
c. Each person runs the same distance and is timed.
d. Younger runners should get a 15-step head start.

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74. Sally and Jill have a foot race from A to B on different paths. Sally runs from A to C and then to B, and Jill runs straight from A to B. Both leave A at the same time and arrive at B together, making a tie.

This means that

a. Jill took longer to get to B than Sally.
b. Sally is a faster runner than Jill.
c. both girls ran at the same speed.
d. their speeds made no difference.

75. What happens when you pour hot water into a cold, empty cup?

a. The water will get hotter.
b. The cup will get colder.
c. The water will get colder.
d. The cup will stay the same temperature.

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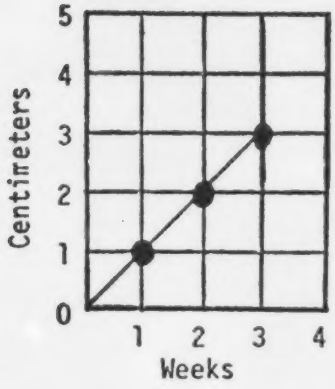
76. A plant grows this way:

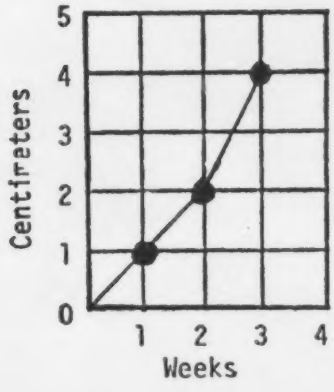
Week	Height (centimeters)
1	1
2	2
3	4

Which graph shows this growth pattern?

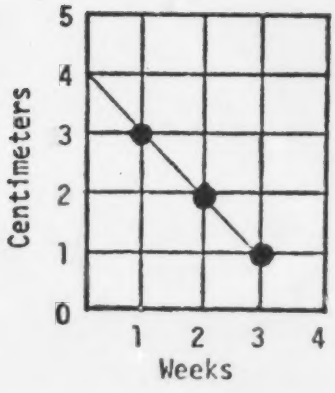
a.



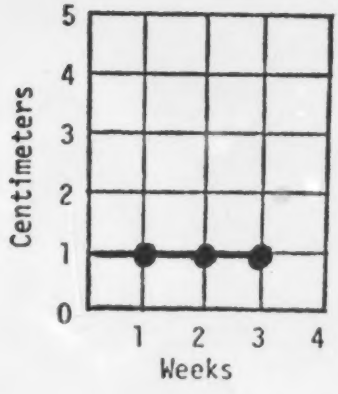
b.



c.



d.



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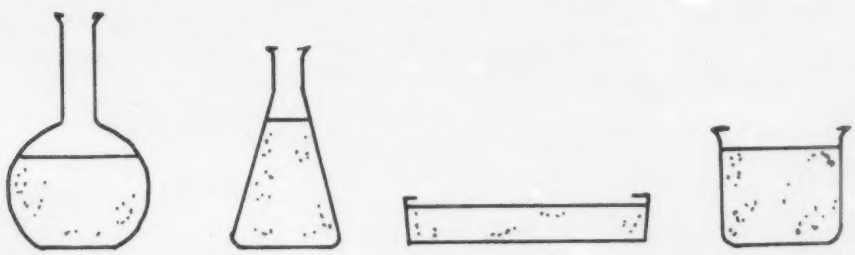
77. A piece of hot metal is placed in cool water. Which of the following is MOST likely to happen?

a. The metal will cool to the original water temperature.
b. The water will heat to the original metal temperature.
c. The water and metal will reach the same temperature.
d. The water and metal will remain at their original temperatures.

78. The same amount of water is poured into each of the containers shown below, and they are left uncovered in a warm room. After a day, which container will have the LEAST amount of water left in it.

a. b. c. d.



79. In order to determine atmospheric air pressure, you should use

a. a thermometer.
b. a barometer.
c. an anemometer.
d. a hydrometer.

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80. In the United States, air masses which cause weather generally move from the

a. east to west.
b. west to east.
c. north to south.
d. south to north.

81. The most prevalent agent of erosion on the earth's surface is

a. wind.
b. moving glaciers.
c. running water.
d. falling rocks.

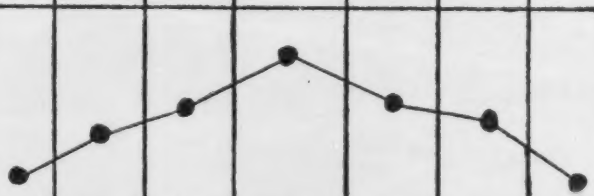
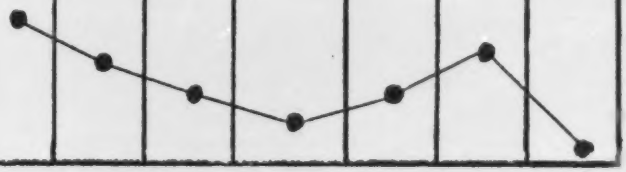
82. Which one of the following is MOST likely to make a rock break open?

a. Dew evaporating on the rock
b. Tree leaves decaying on the rock
c. Snow melting in a crack in the rock
d. Water freezing in a crack in the rock

CONTINUE TO THE NEXT PAGE

Look at the information in the diagram below and answer the two questions.

WEATHER DATA FOR SUN CITY

Day		Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Time		Noon	Noon	Noon	Noon	Noon	Noon	Noon
Cloudiness								
Temperature °F	80° 60° 40°							
Atmospheric Pressure milli bars	1040 1020 1000							

83. Which one of the following conditions might have predicted rain on Sunday?

a. The pressure was dropping, and the temperature was rising.
b. The pressure was rising, and the temperature was dropping.
c. The pressure was dropping, and the temperature was dropping.
d. The pressure was rising, and the temperature was rising.

84. Look at the diagram for the days Monday through Thursday. Choose the best description of the relationship between temperatures and pressure on those days.

a. As the temperature rose, the pressure remained the same.
b. As the pressure rose, the temperature remained the same.
c. As the pressure rose, the temperature dropped.
d. As the temperature rose, the pressure dropped.

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85. Many times when road builders cut into hills, they notice various layers of soil and rocks. These layers are probably caused by

a. the machinery picking up the lighter materials first as it is easier.
b. different amounts of rainfall each year.
c. deposits of various layers over many years during periods of time in the earth's history.
d. heavier materials settling faster.
e. the spinning of the earth causing the lighter materials to come to the surface.

86. Some people think that the solution to coal, gas and oil shortages is to switch over to electricity. In other words, if we run out of gas and oil, we can just switch over to electric cars. What is wrong with this idea?

a. Most electricity is produced from coal, gas and oil.
b. If we switch over to electricity, many people will lose their jobs.
c. It has been proven that it is impossible to build electric cars in great quantities.
d. Electricity is far too expensive.

87. Which of the following is NOT true about a hypothesis?

a. It is testable.
b. It is an intelligent guess.
c. It is one step in the scientific process.
d. It is a proven statement.

CONTINUE TO THE NEXT PAGE

Look at the drawing of a metal pitcher that has been sitting on a table for 20 minutes. Using ONLY the evidence in the drawing, answer the two questions.

88. The pitcher is full.

a. Probably true
b. Probably false
c. Cannot tell from the drawing.

89. There is something cold inside the pitcher.

a. Probably true
b. Probably false
c. Cannot tell from the drawing.

CONTINUE TO THE NEXT PAGE

90. To determine the average length of a fish called a bluegill in a pond, it would be most important to

a. know the exact size of the pond.
b. know which animals prey on bluegills.
c. use a large sample of bluegills.
d. have several people measuring the length of bluegills.

91. Four bricks are placed in full sunlight at 10 a.m. The bricks are colored white, yellow, blue, and black. Which brick will have stored the most heat energy by 2 p.m.?

a. White brick
b. Yellow brick
c. Blue brick
d. Black brick

92. If ice with a temperature of 0°C (Celsius) is in the process of melting, what is the approximate temperature the water that is forming will have?

a. -5°C
b. 0°C
c. 7°C
d. 32°C

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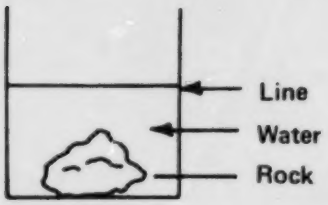
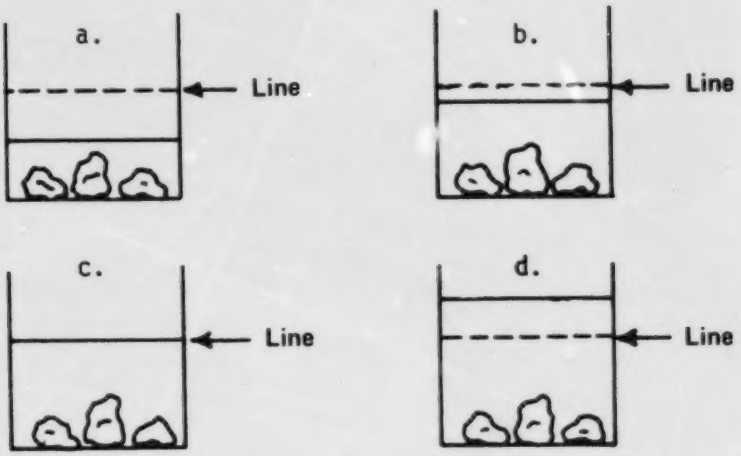


93. When a rock is put into a pail of water, the water comes up to the line as the picture above shows. If the rock is broken into three pieces, which of the pictures below shows how high the water is?



94. Some grape leaves were accidentally sprayed with paint. Those leaves did not get moldy. Other unsprayed grape leaves did get moldy. This discovery led to a way to protect fruit trees and vines from many diseases caused by mold.

This shows that

a. unexpected results are sometimes useful.
b. science and technology work together.
c. scientific laws are the result of careful experimentation.
d. measurement is important in science.

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95. A town that was once located on the mouth of a river is now several kilometers inland from the sea. This change probably occurred as a result of

a. a drop in the level of the ocean.
b. a dam being built on the upstream side of the town.
c. a buildup of soil deposited by the river.
d. sand being deposited by dust storms.

96. Most cells contain all of the following EXCEPT

a. nucleus.
b. tissue.
c. membrane.
d. cytoplasm.

97. It is known that certain gases condense around crystals. What is this knowledge used for?

a. Detecting radio signals
b. Seeding clouds to make rain
c. Making certain crops mature faster
d. Measuring ocean depths

98. If someone tells you that her sprained ankle hurts, she is communicating to you

a. an inference.
b. a hypothesis.
c. an observation.
d. a measurement.

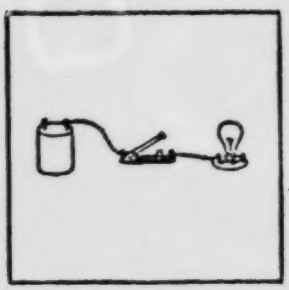
CONTINUE TO THE NEXT PAGE

99. Why is it cooler to wear light-colored clothes in the summer?

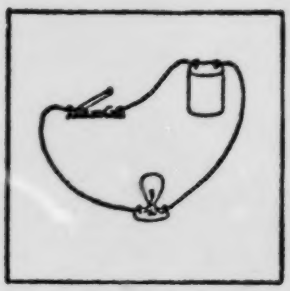
a. Light-colored clothes let more air in.
b. Light-colored clothes prevent sweating.
c. Light-colored clothes are not as heavy as dark-colored clothes.
d. Light-colored clothes reflect more sunlight than dark-colored clothes.

100. Look at the four pictures below. Each shows a battery, a bulb, and a switch. Which bulb will light when the switch is closed?

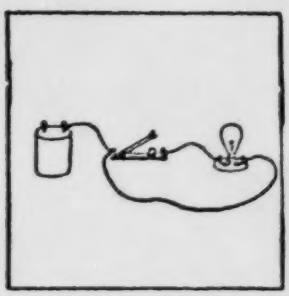
a.



b.



c.



d.

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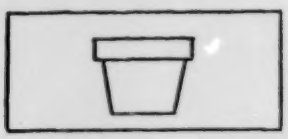
101. If a scientist needs to conduct an experiment, which of the following would indicate the proper sequence of tasks he/she should perform?

a. Experiment, record data, interpret the data.
b. Record data, draw conclusions, write a hypothesis.
c. Design an experiment, interpret the data, conduct the experiment.
d. Interpret data, record the data, draw conclusions.

102. Tom wanted to find out whether plants can grow better in the dark or in the light. He put a pot with 6 radish seeds in a dark room and a pot with 6 bean seeds on the window sill.

radish seeds



bean seeds

He added the same amount of water to both pots. The bean seeds grew better than the radish seeds, so Tom said his plants grew in the light.

One of the things Tom should have done to be able to say this and be correct is:

a. watered both pots more.
b. watered the radish seeds more.
c. put the same kind of seeds in both pots.
d. grown the seeds in water instead of soil.

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103. Which statement best describes how the earth's surface changes over billions of years?

a. A flat surface is gradually pushed up into steeper and steeper mountains until the world is covered with mountains.
b. Very steep mountains gradually wear down until most of the world is worn down to sea level.
c. Very steep mountains gradually wear down to flat surfaces that may be again pushed up into mountains, and so on over and over again.
d. Very steep mountains and flat plains stay side by side for billions of years with little change.

104. Which one of the following is <u>not</u> made up of atoms?

a. Molecules
b. Air
c. Heat
d. Gasoline

105. Over the past 200 years, the greatest threat to the natural environment has been from

a. germs.
b. insects.
c. man.
d. predators.

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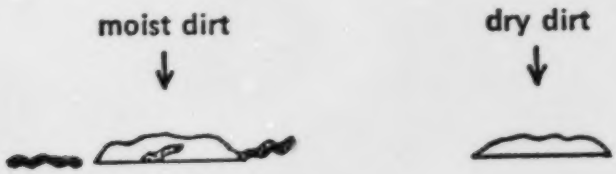
106. Here is a picture of three earthworms and two piles of dirt. One of the piles of dirt is dry and one is moist.

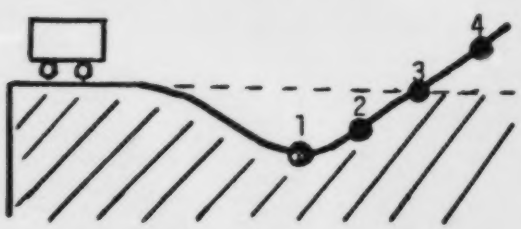


Suppose you experiment. No matter where you place the earthworms, they end up in the moist dirt.

Which one is an observation?

a. The earthworms were thirsty.
b. Living things need water.
c. Animals that crawl need moist dirt.
d. The earthworms moved toward the moist dirt.

107. The dotted line is level. If the wagon starts rolling by itself down the hill, what is the FARTHEST it could go?



a. 1
b. 2
c. 3
d. 4

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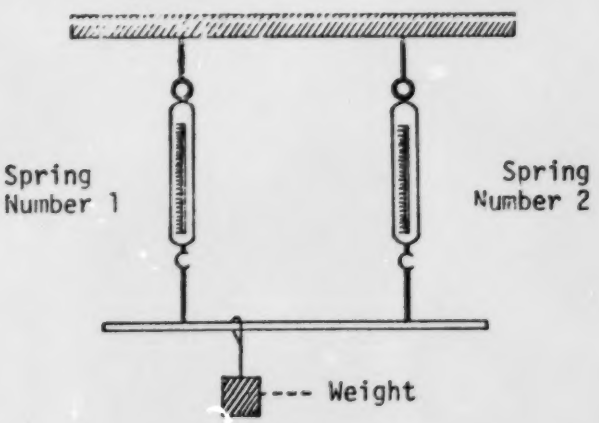
108. A large factory begins to empty industrial waste into the Illinois River. Later, it is found that there are no young catfish downstream from this factory. However, the number of large catfish downstream is about the same as the number of large catfish upstream.

It is likely that the industrial waste

a. prevents spawning.
b. lowered the temperature of the river.
c. has no effect on catfish growth.
d. has decreased the death rate of the young catfish.

109. Two identical springs are arranged as shown. If a weight is suspended as shown in the picture, which of the following will occur?



a. Spring Number 1 stretches more.
b. Spring Number 2 stretches more.
c. Both springs will stretch the same distance.
d. One cannot predict the amount the springs will stretch.

CONTINUE TO THE NEXT PAGE

110. A brick wall absorbed energy, and its temperature increased. Later the brick wall cooled to its original temperature. Compared to the amount of energy absorbed, the energy given off in cooling will be

a. greater.
b. less.
c. equal.
d. impossible to determine.

S T O P

DO NOT CONTINUE UNTIL TOLD TO DO SO.

Part 2; Section 1
Student Questionnaire

DIRECTIONS: This section contains items about you and your opinions. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 27 student questionnaire items. You will have 15 minutes. READY, BEGIN.

111. Are you male or female?

(A) Male
(B) Female

112. How often do you read books about science other than the ones you read for school?

(A) Just about every day
(B) Once or twice a week
(C) Once or twice a month
(D) Once or twice a year
(E) Rarely or never

113. Which group do you belong to?

(A) White American
(B) Black American
(C) American of Cuban, Mexican, Puerto Rican or other Latin American descent
(D) Oriental American
(E) Other

114. About how many hours a day do you watch TV?

(A) More than 4 hours
(B) Between 3 and 4 hours
(C) Between 2 and 3 hours
(D) Between 1 and 2 hours
(E) Less than an hour

115. Out of the 46 items in the science test, how many do you think you answered correctly?

(A) 0-9
(B) 10-18
(C) 19-27
(D) 28-36
(E) 37-46

116. Out of the 46 items in the science test, how low could you score and still be satisfied with the results.

(A) 0-9
(B) 10-18
(C) 19-27
(D) 28-36
(E) 37-46

117. How often do you watch TV documentary programs about nature, medicine, the solar system, or the universe?

A. Just about every day
B. Once or twice a week
C. Once or twice a month
D. Once or twice a year
E. Rarely or never

118. When you perform well on a science assignment at school, it is because

A. you are good at it.
B. you worked very hard.
C. you were lucky.
D. the assignment was easy.

119. When you perform poorly on a science assignment at school, it is because

A. you are not very good at it.
B. you did not work hard enough.
C. you were unlucky.
D. the assignment was hard.

120. How many children are there in your family?

A. Five or more
B. Four
C. Three
D. Two
E. I am an only child.

CONTINUE TO THE NEXT PAGE

121. How often do you talk to your parents about science?

A. Never or hardly at all
B. Once or twice a month
C. Once or twice a week
D. Just about every day

122. Are you studying science in school this year?

A. Yes
B. No

123. How many semesters of science have you had in high school?

A. None
B. One or two
C. Three or four
D. Four or five
E. Six or more

124. Does your mother and/or father work in some science-related area such as medicine, chemistry, or research?

A. Yes
B. No

125. How often do you do science projects other than the ones you do for school?

A. Just about every day
B. Once or twice a week
C. Once or twice a month
D. Once or twice a year
E. Rarely or never

126. When was your last science class in school?

A. Recently
B. Last semester
C. Last school year
D. A few years ago

ANSWER EACH OF THE FOLLOWING QUESTIONS ABOUT HOW YOU FEEL OR WHAT YOU THINK. THERE ARE NO RIGHT OR WRONG ANSWERS.

127. Knowledge of science is important to me because it helps me get good grades.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

128. Knowledge of science is important to me because it helps me understand the world around me.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

129. Knowledge of science is important to me because it impresses my friends.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

130. Knowledge of science is important to me because it's fun to learn.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

131. Knowledge of science is important to me because it gets approval from my teacher.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

132. Knowledge of science will impress my friends.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

CONTINUE TO THE NEXT PAGE

133. Knowledge of science will get me good grades.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

134. Knowledge of science will help me understand the world around me.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

135. Knowledge of science will be fun to learn.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

136. Knowledge of science will get me the approval of my teacher.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

137. Knowledge of science will help me get a good job later in life.

A. Strongly agree
B. Agree
C. Neither agree nor disagree
D. Disagree
E. Strongly disagree

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PART 2 SECTION 2

MATHEMATICS TEST

DIRECTIONS: This section contains mathematics items. For each item, read the question and the answer choices. Then, darken the bubble of your choice on the answer sheet. There are 49 mathematics items. You will have 45 minutes. READY, BEGIN.

CONTINUE TO THE NEXT PAGE

138. Multiply:

$$\begin{array}{r} 2{,}037 \\ \times\ 82 \\ \hline \end{array}$$

A. 167,770

B. 20,370

C. 230,034

D. 167,034

139. Which fraction is the largest?

A. $\frac{2}{3}$

B. $\frac{3}{4}$

C. $\frac{4}{5}$

D. $\frac{5}{8}$

140. Twenty cents is what part of $1.00?

A. $\frac{1}{20}$

B. $\frac{1}{9}$

C. $\frac{1}{5}$

D. $\frac{1}{4}$

E. $\frac{1}{2}$

141. Which is closest to the size of one cm^2?

A. A tennis court

B. The cover of a record album

C. A slice of bread

D. Your thumbnail

142. Tom bought a bicycle last year for $70. This year the same model is selling for 10% more. What is the price of the bicycle this year?

A. $77

B. $80

C. $82

D. $87

143. There are 13 boys and 15 girls in a group. What fractional part of the group is boys?

A. $\frac{13}{28}$

B. $\frac{15}{28}$

C. $\frac{13}{15}$

D. $1\frac{2}{13}$

CONTINUE TO THE NEXT PAGE

144. In one year, a government department spends the following sums on four projects:

Project A:	$11,954,164
Project B:	$1,126,055
Project C:	$4,170,522
Project D:	$750,572

Approximately how many MILLIONS of dollars were spent on these four projects? Give your answer to the nearest MILLION dollars.

A. $16,000,000

B. $17,000,000

C. $18,000,000

D. $19,000,000

145. Multiply: $\frac{7}{14} \times \frac{4}{5}$

A. $\frac{11}{19}$

B. $\frac{2}{5}$

C. $\frac{35}{56}$

D. $\frac{28}{9}$

146. A recipe for punch calls for equal amounts of lemonade, limeade, orange juice, and ginger ale. How many quarts of ginger ale would be needed in order to make two gallons of this punch?

A. 1

B. 2

C. 3

D. 4

147. 80 is what percent of 40?

A. 20%

B. 32%

C. 50%

D. 200%

148. A used car can be bought for cash for $2,850 or on credit with a down payment of $400 and $80 a month for three years. How much MORE would a person pay by buying on credit rather than by buying the car for cash?

A. $400

B. $430

C. $450

D. $470

CONTINUE TO THE NEXT PAGE

149. Multiply: $4 \times 1\frac{5}{6}$

A. $4\frac{5}{6}$

B. $5\frac{5}{6}$

C. $7\frac{1}{3}$

D. $\frac{11}{24}$

150. A parking lot charges 35 cents for the first hour and 25 cents for each additional hour or fraction of an hour. For a car parked from 10:45 in the morning until 3:05 in the afternoon, how much money should be charged?

A. $1.25

B. $1.35

C. $1.65

D. $1.75

151. Multiply:
$$\begin{array}{r} 0.18 \\ \times\ 0.9 \end{array}$$

A. 1.72

B. 1.62

C. 0.92

D. 0.162

152. What is the area of the rectangular region?

A. 17 square units

B. 34 square units

C. 60 square units

D. 240 square units

153. Cloth is sold by the square meter. If 6 square meters of cloth cost $4.80, the cost of 16 square meters will be

A. $12.80

B. $14.40

C. $28.80

D. $52.80

E. $128

154. In which of these is the order of the numbers from smallest to largest?

A. 30.99, 31.3, 31.29

B. 31.29, 30.99, 31.3

C. 31.29, 31.3, 30.99

D. 31.3, 31.29, 30.99

E. 30.99, 31.29, 31.3

CONTINUE TO THE NEXT PAGE

155. The measure of the smaller angle formed by the two hands of a clock at four o'clock is

A. 45 degrees.

B. 60 degrees.

C. 90 degrees.

D. 120 degrees.

E. 150 degrees.

156. Add: $\frac{1}{2} + \frac{1}{3}$

A. $\frac{1}{5}$

B. $\frac{2}{5}$

C. $\frac{2}{6}$

D. $\frac{5}{6}$

157. 2^3 is equal to:

A. 5

B. 6

C. 8

D. 9

E. 16

158. If x is replaced by 3, then the value of $x^2 - 1$ is

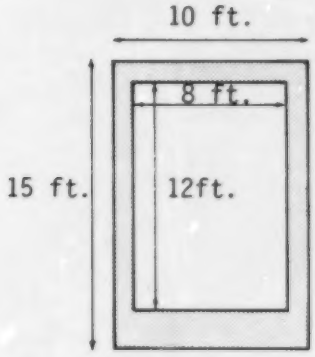
A. 2

B. 5

C. 8

D. 11

159. What is the area of the shaded portion of the figure below?



A. 48 square feet

B. 54 square feet

C. 96 square feet

D. 150 square feet

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160. Which of the following pairs of fractions are equivalent?

A. $\frac{5}{8}$ and $\frac{2}{3}$

B. $\frac{3}{5}$ and $\frac{9}{25}$

C. $\frac{4}{5}$ and $\frac{14}{15}$

D. $\frac{3}{5}$ and $\frac{9}{15}$

E. $\frac{1}{2}$ and $\frac{14}{24}$

161. Which one of the following is closest to the SQUARE ROOT of 10?

A. 2.5

B. 2.7

C. 3.2

D. 3.8

162. If there are 300 calories in 9 ounces of a certain food, how many calories are there in a 6-ounce portion of that food?

A. 150

B. 180

C. 200

D. 220

163. Divide: $3\frac{1}{2} \div 2 =$

A. $1\frac{1}{2}$

B. $1\frac{3}{4}$

C. $2\frac{1}{4}$

D. 3

164. John's parents bought a refrigerator for $375. If they pay $20 per month for two years, how much more than $375 will the refrigerator cost them?

A. $ 95

B. $105

C. $200

D. $375

165. $(r + s) - (r - s) =$

A. $2r$

B. $2s$

C. $2r + 2s$

D. $2r - 2s$

CONTINUE TO THE NEXT PAGE

166. In a given triangle, the measures of two of the angles are 35 degrees and 75 degrees. The measure of the third angle is

A. 40 degrees.

B. 55 degrees.

C. 70 degrees.

D. 95 degrees.

E. 110 degrees.

167. Solve for n: $\frac{12}{26} = \frac{18}{n}$

A. 39

B. 38

C. 32

D. 13

168. A door-to-door sales representative receives 20 percent of the retail value of a sale as commission. What must the total retail sale be if the commission is $60?

A. $120

B. $200

C. $250

D. $300

169. Subtract: $3\frac{1}{5} - 1\frac{4}{5}$

A. $1\frac{7}{5}$

B. $2\frac{3}{5}$

C. $1\frac{2}{5}$

D. $2\frac{2}{5}$

170. At the end of the season, the price of lawn chairs was reduced 35%. How much should Mr. Johnson pay for a chair that was originally $10.00?

A. $3.50

B. $5.50

C. $6.50

D. $7.50

171. If a + 3 = b and 3 + c = b, then

A. a is less than c.

B. a is equal to c.

C. a is greater than c.

D. there is not enough information to determine the relation between a and c.

CONTINUE TO THE NEXT PAGE

172. $\frac{7}{9}$ equals:

A. 0.77

B. 0.78

C. 0.777

D. 0.777...

173. Using the scale of 1 yard = $\frac{1}{2}$ inch, a scale drawing is made of a swimming pool 25 yards in length. How many inches long is the pool in the drawing:

A. $12\frac{1}{2}$

B. 20

C. 25

D. $25\frac{1}{2}$

174. Solve: $3x - 3 = 12$

$x =$

A. 3

B. 5

C. 9

D. 15

175. $\frac{3}{5}$ is equal to

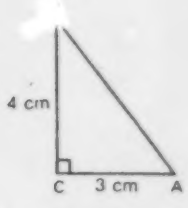
A. 6%

B. 15%

C. 30%

D. 60%

176. In the figure below, what is the area of $\triangle$ ABC?



A. 6 cm^2

B. 7 cm^2

C. 7.5 cm^2

D. 10 cm^2

E. 12 cm^2

A. 47 inches

B. 60 inches

C. 72 inches

D. 150 inches

177. In a school election with three candidates, Joe received 120 votes, Mary received 50 votes, and George received 30 votes. What percentage of the total number of votes did Joe receive?

A. 40%

B. 50%

C. 60%

D. 70%

CONTINUE TO THE NEXT PAGE

178. $(4X + 2)(X - 5) =$

A. $4X^2 + 2X - 5$

B. $4X^2 - 18X - 10$

C. $4X^2 - 10$

D. $4X^2 + 2X - 3$

179. 45% of 180 is

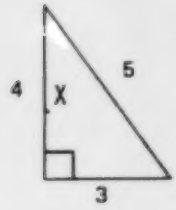
A. 45

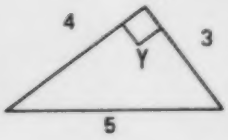
B. 90

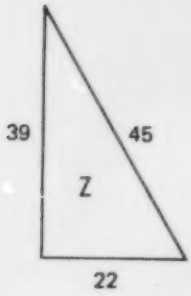
C. 81

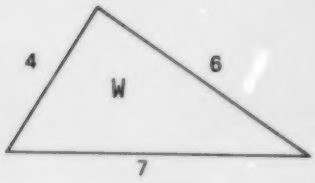
D. 180

180. Which of the triangles below is/are congruent to triangle X?









A. Only Y

B. Only Y and Z

C. Only Z

D. Only W

E. Only Z and W

CONTINUE TO THE NEXT PAGE

181. 45% of what number is 90.

A. 0.20

B. 40.50

C. 50

D. 200

182. What is the volume of a box with a width of 9 cm, a length of 12 cm and a height of 25 cm?

A. 46 cm^3

B. 270 cm^3

C. 460 cm^3

D. 525 cm^3

E. 2700 cm^3

183. Three friends go through the same lunch line. In how many different ways can they arrange themselves in the line?

A. 3

B. 4

C. 5

D. 6

184. A runner ran 3,000 meters in exactly eight minutes. What was the average speed?

A. 3.75 meters per second

B. 6.25 meters per second

C. 16.0 meters per second

D. 37.5 meters per second

E. 62.5 meters per second

185. If a city's property tax is $30.00 per $1,000 of assessed value, the tax on property assessed at $14,900 would be CLOSEST to which amount?

A. $400

B. $420

C. $450

D. $470

186. Lynn was paid $15 for one week mowing lawns. What other information is needed before you can find out how much Lynn charges per hour?

A. Lynn worked 2 hours on Monday and 3 hours on Wednesday.

B. Lynn paid $1.00 to have the lawn mower fixed and 50¢ for gas.

C. Lynn earned more this week than last week.

D. Lynn spent 90¢ on ice cream cones.

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100 North First Street
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